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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,756	12/27/2001	Dana A. Gronbeck	50681	1885
21874	7590	10/14/2003		
EDWARDS & ANGELL, LLP P.O. BOX 9169 BOSTON, MA 02209			EXAMINER LEE, SIN J	
			ART UNIT 1752	PAPER NUMBER

DATE MAILED: 10/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/034,756

Applicant(s)

GRONBECK ET AL.

Examiner

Sin J Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7, 19 and 30-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 19 and 31-38 is/are rejected.
- 7) ☒ Claim(s) 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Sheares (6,100,373).

In order to synthesize a polymer of his invention, Sheares purifies his monomers by distillation and purifies his polymerization initiator (such as 2,2'-azobisisobutyronitrile) by recrystallization or by reprecipitation (see Example 4). It is the Examiner's position that Sheares's reprecipitation of the polymerization initiator would constitute admixing the initiator with an organic solvent and then precipitating the initiator from the resulting solution as presently recited in claim 19. Therefore, the prior art teaches present invention of claim 19.

3. Claims 32-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Rahman (5,580,700).

Rahman teaches a bottom anti-reflective coating composition comprising an ion exchange resin-treated dye polymer (i.e., the dye polymer solution is passed through an ion exchange resin thereby *reducing the level of sodium and iron ions* in the solution to

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preferably *less than 10 ppb*) and a solvent (see col.4, lines 4-16). The bottom anti-reflective coating is then coated onto a suitable substrate, and the substrate is then coated with a photoresist composition (see col.6, lines 3-5). The coated substrate is exposed to actinic radiation, and the exposed anti-reflective coating/photoresist-coated substrate is developed to remove the imagewise exposed areas of the photoresist. (see col.6, lines 22-23, lines 35-39). Therefore, the prior art teaches present inventions of claims 32 and 38.

With respect to present claims 33-37, those claims are drawn to a polymer *that has been prepared by* admixing a monomer and a polymerization initiator which has been purified prior to synthesis of the polymer according to the purification methods recited in claims 34-36. That is, these claims are *product-by-process* claims. See MPEP 2113. Since Rahman's ion exchange resin-treated dye polymer already has an extremely low level of metal ions (less than 10 ppb), it is the Examiner's position that Rahman's polymer would have the same characteristics (i.e., substantially free of ionic metal contaminants) as those polymers that has been prepared by admixing a monomer and a polymerization initiator which has been purified prior to synthesis of the polymer according to the purification methods recited in claims 34-36. Therefore, Rahman still teaches present inventions of claims 33-37.

#### ***Claim Rejections - 35 USC § 103***

4. Claims 1-6 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheares (6,100,373) in view of Kelly et al (5,426,014).

Sheares teaches (see abstract) functionalized diene monomers and polymers made from such monomers. In Example 4, Sheares purifies his monomers by distillation and purifies his polymerization initiator (such as 2,2'-azobisisobutyronitrile) by recrystallization or by reprecipitation. Since the prior art teaches purifying the polymerization initiator prior to synthesis of the polymer by reprecipitation as also claimed in present claims 2 and 5, it is the Examiner's position that Sheares's polymer made in Example 4 would inherently be substantially free of ionic metal contaminants as recited in present claim 1. Sheares teaches (col.10, lines 43-49) that the polymers of his invention are particularly useful in adhesive coating to various *substrates*, such as metals, glasses, and plastics. Although Sheares does not explicitly state that the adhesive coating composition would include a photoinitiator (a photoactive component), it is known in the art (as evidenced by Kelly et al, col.10, lines 61-64) that an adhesive coating which comprises a polymer containing pendant ethylenically unsaturated moieties also comprises a photoinitiator so that the pendant ethylenically unsaturated moieties in the polymer can be cross-linked by irradiation. Since Sheares's polymer also contains pendant ethylenically unsaturated moieties, and since Sheares teaches that his polymers are particularly useful in adhesive coating to various substrates, it is the Examiner's position that one of ordinary skill in the art would have found it obvious to use Sheares's polymer in an adhesive coating composition that also contains a photoinitiator so that the ethylenically unsaturated moieties in the polymer can be cross-linked by irradiation. Therefore, Sheares in view of Kelly would render obvious present inventions of claims 1, 2, 5, and 31.

With respect to present claims 3 and 4, those claims are drawn to a polymer *that has been prepared by* admixing a monomer and a polymerization initiator which has been purified by washing or slurrying the initiator with an aqueous solvent such as water. That is, these claims are *product-by-process* claims. See MPEP 2113. Since Sheares already teaches a polymer that is made by using a polymerization initiator that has been purified by recrystallization or by reprecipitation, it is the Examiner's position that Sheares's polymer would have the same characteristics (i.e., substantially free of ionic metal contaminants) as the polymer that has been prepared by admixing a monomer and a polymerization initiator which has been purified by washing or slurrying the initiator with an aqueous solvent such as water. Therefore, Sheares in view of Kelly still renders obvious present inventions of claims 3 and 4. Based on the same logic, Sheares in view of Kelly would also render obvious present invention of claim 6.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sheares (6,100,373) in view of Kelly et al (5,426,014) as applied to claim 2 above, and further in view of Ochiai et al (5,529,885).

Sheares in view of Kelly is discussed above in Paragraph 4. After the polymer synthesis in his Example 4, Sheares teaches that his polymers are purified by reprecipitation. It is known in the art (as evidenced by Ochiai et al, col.7, lines 26-27) that distillation and reprecipitation are interchangeable techniques for purifying a polymer. Therefore, since distillation and reprecipitation are art-recognized equivalent techniques for purifying a polymer, it would have been obvious to one of ordinary skill in the art to use distillation to purify Sheares's polymer in Example 4. Therefore, Sheares

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in view of Kelly, and further in view of Ochiai would render obvious present invention of claim 7.


***Allowable Subject Matter***

6. Claim 30 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims since Sheares in view of Kelly et al do not teach or suggest present method of forming a photoresist relief image of claim 30.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is (703) 305-0504. The examiner can normally be reached on Monday-Friday from 8:30 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Janet Baxter, can be reached on (703) 308-2303. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9311 for after final responses or (703) 872-9310 for before final responses.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0661.



S. Lee  
10/1/03



JANET BAXTER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700